

Data Concentrator for Modular and Distributed Control of Propulsion Systems, Phase I

Completed Technology Project (2011 - 2011)



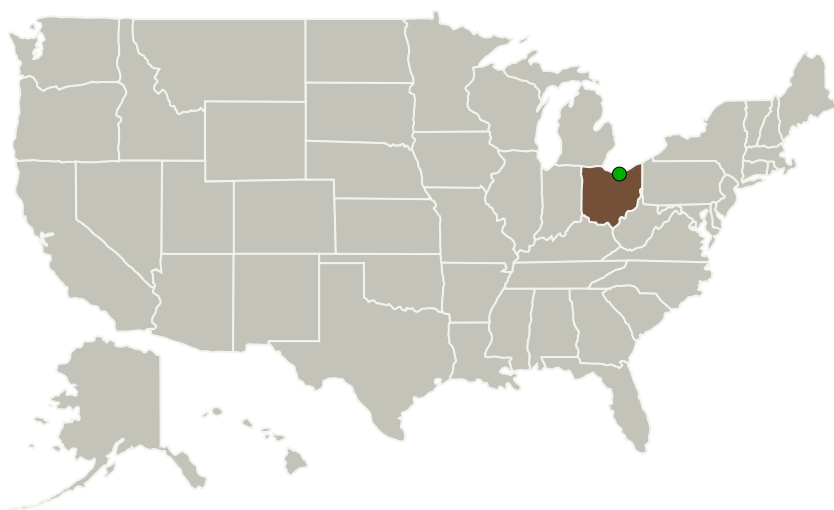
Project Introduction

Orbital Research proposes to develop, build and test a high temperature Data Concentrator Module for use in distributed turbine engine control at high temperatures. The concentrator receives analog and digital signals related to turbine engine control and communicates with a FADEC or high level command processor. This data concentrator follows the road map put forth by DECWG for use in creating a demonstration platform for turbine engine distributed controls communication development that operates at temperatures at least up to 225

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C. The goal of Phase I is to develop detailed specifications for each component needed for the system, as well as to define the total system specification. This will entail a combination of system design, compiling existing component specifications, laboratory testing, and simulation. The results will show feasibility of the data concentrator. Phase II of this program will focus on three key objectives: The first objective will be the detailed design, fabrication and testing of three new high temperature ASICs. Secondly software necessary to demonstrate operation the prototype will be developed. Finally integration of the components and software into a prototype high temperature Data Concentrator Module will be completed to demonstrate operation of the complete system in a realistic environment.

Primary U.S. Work Locations and Key Partners



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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	3
Target Destinations	3

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Organizations Performing Work	Role	Type	Location
Orbital Research, Inc.	Lead Organization	Industry	Cleveland, Ohio
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations

Ohio

Project Transitions

**February 2011:** Project Start**September 2011:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140173>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Orbital Research, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

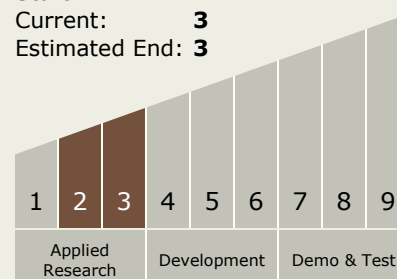
Carlos Torrez

Principal Investigator:

Mike Willett

Technology Maturity (TRL)

Start: 2
 Current: 3
 Estimated End: 3



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Technology Areas

Primary:

- TX01 Propulsion Systems
 - └ TX01.3 Aero Propulsion
 - └ TX01.3.2 Turbine Based Combined Cycle

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System